

AC A1449

Dual curable Epoxy Sealant for Packaging Applications

Features

- High Tg
- Low moisture permeability
- Good adhesion to various substrates: glass, metal and ceramic
- Excellent Thermal stability > 200 °C
- Excellent for hot solder process of > 280 °C
- Low CTE
- Dual Cure: UV or Heat
- Yellow color added for vision system alignment

Description

- Dual-curable epoxy sealant

APPLICATIONS

AC A1449 is suitable for bonding glass to glass, glass to ceramic, ceramic to ceramic or ceramic to metal, or for bonding plastics. Applications include semiconductor packaging, plastic or ceramic housing assembly, etc.

TYPICAL PROPERTIES

Liquid: Uncured properties

Viscosity (cps, 25 °C)	>200,000
Viscosity (cps, 40 °C)	30,000 – 33,000
Storage (°C)	20 – 25
Shelf life (20 – 25 °C)	6 months
Pot life (20 – 25 °C)	2 months

Cured film: Cured mechanical properties

Shrinkage (linear, %)	<0.3
Water permeability (g/m 24 hrs) (50 °C/95% RH, 75 µm film)	3 x 10 ⁻⁴
Hardness – Shore D	95
Glass transition temperature (°C) (DMA)	202
Refractive index of cured film (25°C) @ 589 nm	1.593
Physical properties tested at 25°C, 50% RH (ASTM D638)	
Tensile, psi	80,000
Elongation (%)	3
Modulus, psi	500,000
Coefficient of thermal expansion (TMA), 75 µm film	
below Tg (x10 ⁻⁶), °C ⁻¹	21
above Tg (x10 ⁻⁶), °C ⁻¹	60

UV curing conditions

Flood curing system – UV dose (J/cm ²)	2.0
Spot cure system – UV dose (J/cm ²) 250 – 450 nm filter	5-10

Photoinitiator system is tuned for UV-B range (290 to 320 nm) and UV-A range (320 to 400 nm)

**** cure color indicator: The cured film has an amber, dark red or brown color**

Heat curing conditions:

@ 150 °C	2-4 hrs (if thermal is the only curing method) 2 hrs (if both UV and thermal curing are used)
@ 170 °C	2-3 hrs (if thermal is the only curing method) 1 hr (if both UV and thermal curing are used)
@ 250 °C	5 to 15 minutes (if thermal is the only curing method)
Operating temperature (°C)	-60 to 200 °C

***Minimum intensity recommended for Spot lamp system: 100 mW/cm²

***Minimum intensity recommended for Flood lamp system: 49 W/cm or 125 WPI or 100 mW/cm²

To ensure good curing speed, the humidity is recommended to be < 40% RH

SAFETY AND HANDLING

The un-cured adhesive can be cleaned from apparatus with isopropyl alcohol (IPA), methyl ethyl ketone (MEK), or commercial alcohol based cleaning solution.

Use caution in handling this material. Avoid direct skin and eye contact. Use only in well ventilated areas. Use protective clothing, gloves and safety goggles. Read Material Safety Data Sheet before handling.

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